What is claimed is:

1. A method for coating solid particles comprising the steps of

(a) adding solid particles to a liquid coating solution to form a liquid coating slurry containing a coating precursor, solvent for the precursor and the solid particles dispersed therein,

(b) spraying the coating slurry to form droplets containing at least one particle,

(c) passing the droplets through a zone where the droplets are dried and form dry coated particles wherein the coating material is formed from the precursor, and

(d) heat treating the coating material on the particles to remove volatile matter from the coating material.

2.The method of claim 1 wherein condition of the coating slurry is such that no coating material is deposited on the particles prior to said spraying step.

3. The method of claim 2 wherein temperature in the zone is elevated and the heat treatment of the coated particles is conducted at a temperature above the elevated temperature in the zone, and the precursor is selected from the group consisting of alkoxides, nitrates, sulfates, acetates, hydroxides, hydrates, chlorides and mixtures thereof.

4. The method of claim 3 wherein the particles are less than about 100 microns in diameter, dilution ratio in the coating slurry of solid/liquid is 100-5000, thickness of the coating material on the particles is 1-1000 nm, velocity of the droplets in the zone is 0.1-100 cm/sec and residence of the droplets in the zone is from instantaneous to a fraction of a minute.

5. The method of claim 3 wherein the particles are less than about 50 microns in diameter, temperature in the zone is 100-500°C, dilution ratio in the coating slurry of solid/

liquid is 200-3000, thickness of the coating material on the particles is 2-200 nm, velocity of the droplets in the zone is 1-50 cm/sec, and residence time of the droplets in the zone is 0.1-10 seconds.

6. The method of claim 5 including the step of mixing a precursor solution with a diluent which diluent is miscible with the precursor solution to form the coating solution, the precursor solution containing coating precursor during droplet formation .

7. The method of claim 6 wherein the residence time of the droplets through the zone is 1-5 seconds, the particles are phosphor particles, and said heat treating step is carried out at 200-2000°C over a period of 0.01-40 hours.

8. The method of claim 7 wherein said heat-treating step is carried out at 300-1500°C over a period of 0.1-5 hours.

9. The method of claim 8 wherein the coating material is selected from the group consisting of inorganic, organic and organic/inorganic hybrids.

10. The method of claim 8 wherein the coating material is selected from the group consisting of indium tin oxide, silicon dioxide, magnesium oxide, sodium phosphate, yttrium-europium oxide, and mixtures thereof; and the precursor is selected from the group consisting of indium methyl (trimethyl) acety acetate, tin isopropoxide, tetraethyl orthosilicate, magnesium nitrate, yttrium chloride, europium chloride, sodium phosphate and mixtures thereof.

11. The method of claim 10 wherein the particles are ZnS:Ag.Cl phosphor particles.

12. The method of claim 4 including the step of providing at least one more coating on the coated particles.

13. A method comprising the steps of

(a) preparing a liquid precursor solution by dissolving a coating precursor in a liquid precursor solvent;

(b) mixing the precursor solution with a diluent, that is miscible with the precursor solvent, to form a liquid coating solution;

(c) adding with mixing solid particles to the coating solution to form a liquid coating slurry containing the coating precursor dissolved in the coating solution and the solid particles dispersed therein;

(d) spraying the coating slurry to form droplets containing at least one particle;

(e) passing the droplets through a zone where the droplets are dried and form dry particles coated with a coating material formed from the precursor(s);

(f) heat-treating the coating material on the particles to remove volatile matter on the coating material and to convert the coating material from electrically non-conducting amorphous to electrically conducting crystalline and/or to improve integrity of the coating material.

14. The method of claim 123 wherein condition of the coating slurry is such that no coating material is deposited on the particles prior to said spraying step.

15. The method of claim 13 wherein temperature in the zone is elevated and the heat treatment of the coated particles is conducted at a temperature above the elevated temperature in the zone, and the precursor(s) is selected from the group consisting of alkoxides, nitrates, sulfates, acetates, hydroxides, dydrides, chlorides and mixtures thereof.

16. The method of claim 15 wherein the particles are less than about 100 microns in

diameter, dilution ratio in the coating slurry of solid/liquid is 100-5000, thickness of the coating material on the particles is 1-1000 nm, velocity of the droplets in the zone is 0.1-100 cm/sec and residence of the droplets in the zone is from instantaneous to a fraction of a minute.

17. The method of claim 16 wherein the particles are less than about 50 microns in diameter, temperature in the zone is 100-500°C, dilution ratio in the coating slurry of solid/liquid is 200-3000, thickness of the coating material on the particles is 2-200 nm, velocity of the droplets in the zone is 1-50 cm/sec, and residence time of the droplets in the zone is 0.1-10 seconds.

18. The method of claim 17 wherein the residence time of the droplets through the zone is 0.1-10 seconds, the particles are phosphor particles, and said heat treating step is carried out at 200-2000°C over a period of 0.01-48 hours.

19. The method of claim 17 wherein said heat-treating step is carried out at 300-1500°C over a period of 0.1-24 hours and wherein the coating material is selected from the group consisting of inorganic, organic and inorganic/organic hybrids.

20. The method of claim 13 wherein said heat-treating step is carried out at 300-1500°C over a period of 0.1-24 hours and wherein the coating material is selected from the group consisting of indium tin oxide, silicon dioxide, magnesium oxide, sodium phosphate, yttrium-europium oxide, and mixtures thereof; and the precursor(s) is (are) selected from the group consisting of indium methyl (trimethyl) acety acetate, tin isopropoxide, tetraethyl orthosilicate, magnesium nitrate, yttrium chloride, europium chloride and mixtures thereof.